

**LISTING OF CLAIMS:**

Claims 1 - 15 (cancelled).

16. (new) A solid support comprising a substrate and a layer deposited on said substrate, said layer being a layer of at least one material selected from the group consisting of  $\text{HfO}_2$ ,  $\text{TiO}_2$ ,  $\text{Ta}_2\text{O}_5$ , and  $\text{ZrO}_2$ , said layer providing a surface for immobilizing oligonucleotides, said surface having undergone a treatment to make it hydrophilic.

17. (new) The solid support according to claim 16, wherein said layer has a thickness of between a few nonometers and one micrometer.

18. (new) The solid support according to claim 16, wherein said substrate is selected from the group consisting of glass, plastic and semiconductor substrates.

19. (new) The solid support according to claim 18, wherein said substrate is silicon.

20. (new) The solid support according to claim 16, wherein said material is a mixture containing  $\text{SiO}_2$ .

21. (new) The solid support according to claim 16, wherein said layer is formed of  $\text{HfO}_2$ .

22. (new) The solid support according to claim 21, wherein said support is formed of silicon.

23. (new) A biochip comprising a solid support for immobilizing oligonucleotides according to claim 16.

24. (new) A method for producing a solid support having a surface for immobilizing oligonucleotides, the method comprising the steps of:

- a) providing a substrate;
- b) depositing on said substrate a layer of at least one material selected from the group consisting of  $\text{HfO}_2$ ,  $\text{TiO}_2$ ,  $\text{Ta}_2\text{O}_5$ , and  $\text{ZrO}_2$ ; and
- c) treating a free surface of said layer to make it hydrophilic to provide said surface for immobilizing oligonucleotides.

25. (new) The method according to claim 24, wherein said layer has a thickness of between a few nonometers and one micrometer.

26. (new) The method according to claim 24, wherein said substrate is selected from the group consisting of glass, plastic and semiconductor substrates.

27. (new) The method according to claim 24, wherein said layer contains SiO<sub>2</sub>.

28. (new) The method according to claim 24, wherein said depositing step includes a deposition method selected from the group consisting of vacuum evaporation, ion beam sputtering, radio-frequency sputtering, magnetron sputtering, atom layer chemical vapor deposition (ALCVD) and sol-gel deposition.

29. (new) The method according to claim 24, wherein step (c) includes cleaning said layer with a base solution or an acid solution.

30. (new) The method according to claim 24, further including the step of structuring the free surface of said layer.

31. (new) The method according to claim 30, wherein said structuring step includes a technique selected from the group consisting of dry etching, wet etching and "lift-off".